

WHAT IS CLAIMED IS:

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1. An information processing apparatus
comprising:

5 input means for inputting a plurality type of
information; and

input analyzing means for analyzing a combination
of at least two types of information input from said
input means.

10 2. An information processing apparatus according
to claim 1, wherein said input analyzing means
includes:

15 input information concept instance generating
means for generating a concept instance from each piece
of the input information; and

concept instance unifying means for unifying a
plurality of generated concept instances.

20 3. An information processing apparatus according
to claim 2, wherein the concept instance includes a
type of a slot and an instance corresponding to the
slot of the type.

25 4. An information processing apparatus according
to claim 2, further comprising:

a database for storing the input information and
information necessary for generating the concept

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5 instance, in one-to-one correspondence; and
retrieving means for retrieving information
necessary for generating the concept instance
corresponding to the input information, from said
database,

wherein said input information concept instance
generating means generates the concept instance in
accordance with the information retrieved from said
database.

10 5. An information processing apparatus according
to claim 4, wherein said database stores a concept
type, a rule necessary for the concept instance, and a
rule necessary for a surface layer word, respectively
15 corresponding to a surface layer character string.

20 6. An information processing apparatus according
to claim 5, wherein said unifying means unifies the
concept instances in accordance with the rules.

25 7. An information processing apparatus according
to claim 6, wherein said database stores, as a
definition of a concept, a slot type of a slot which
the concept instance can have, and a rule which is
required to be satisfied by the instance corresponding
to the slot.

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8. An information processing apparatus according to claim 7, wherein said unifying means unifies the concept instances in accordance with the rule designated by the definition of the concept
5 corresponding to the type of the concept of the concept instance.

9. An information processing apparatus according to claim 6, wherein said unifying means selects an
10 applicable request in accordance with requirements of a plurality of rules, applies the selected request and unifies the concept instances.

10. An information processing apparatus according to claim 2, further comprising:
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state acquiring means for acquiring a state at an input timing, wherein said input information concept instance generating means generates the concept instance in accordance with the state acquired by said
20 state acquiring means.

11. An information processing apparatus according to claim 2, further comprising state storing means for storing a past state, wherein said input information
25 concept instance generating means generates the concept instance in accordance with the past state read from said state storing means.

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12. An information processing apparatus according to claim 1, wherein said input means can input key information.

5 13. An information processing apparatus according to claim 12, wherein said input means can input character information by converting the key information.

10 14. An information processing apparatus according to claim 1, wherein said input means can input speech information.

15 15. An information processing apparatus according to claim 14, wherein said input means can input character information by recognizing the speech information and converting the speech information into character information.

20 16. An information processing apparatus according to claim 1, wherein said input means can optically input image information.

25 17. An information processing apparatus according to claim 16, wherein said input means can input character information of the image information by optically recognizing the image information.

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18. An information processing apparatus according to claim 1, wherein said input means can input hand-written information.

5 19. An information processing apparatus according to claim 18, wherein said input means can input the hand-written character information by recognizing the hand-written character information on line.

10 20. An information processing apparatus according to claim 1, further comprising input order storing means for storing an input order of information input from said input means, wherein said input analyzing means analyzes the combination of at least two types of
15 input information in accordance with the input order stored in said input order storing means.

20 21. An information processing apparatus according to claim 1, further comprising input time storing means for storing an input time of information input from said input means, wherein said input analyzing means analyzes the combination of at least two types of input information in accordance with the input time stored in said input time storing means.

25 22. An information processing apparatus according to claim 21, further comprising input order judging

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means for judging the input order of at least two types
of input information in accordance with the input time
of each piece of the input information stored in said
input time storing means, wherein said input analyzing
5 means analyzes the combination of the input information
in accordance with the judged input order.

23. An information processing method comprising:
an input step of inputting a plurality type of
10 information; and
an input analyzing step of analyzing a combination
of at least two types of information input by said
input step.

24. An information processing method according to
15 claim 23, wherein said input analyzing step includes:
an input information concept instance generating
step of generating a concept instance from each piece
of the input information; and
20 a concept instance unifying step of unifying a
plurality of generated concept instances.

25. An information processing method according to
claim 24, wherein the concept instance includes a type
25 of a slot and an instance corresponding to the slot of
the type.

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26. An information processing method according to claim 24, further comprising:

5 a retrieving step of retrieving information necessary for generating the concept instance corresponding to the input information, from a database for storing the input information and information necessary for generating the concept instance, in one-to-one correspondence, wherein said input information concept instance generating step generates the concept
10 instance in accordance with the information retrieved from said database.

27. An information processing method according to claim 26, wherein the database stores a concept type, a
15 rule necessary for the concept instance, and a rule necessary for a surface layer word, respectively corresponding to a surface layer character string.

28. An information processing method according to
20 claim 24, wherein said unifying step unifies the concept instances in accordance with the rules.

29. An information processing method according to claim 28, wherein the database stores, as a definition
25 of a concept, a slot type of a slot which the concept instance can have, and a rule which is required to be satisfied by the instance corresponding to the slot.

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30. An information processing method according to claim 29, wherein said unifying step unifies the concept instances in accordance with the rule designated by the definition of the concept corresponding to the type of the concept of the concept instance.

31. An information processing method according to claim 28, wherein said unifying step selects an applicable request in accordance with requirements of a plurality of rules, applies the selected request and unifies the concept instances.

32. An information processing method according to claim 24, further comprising:

a state acquiring step of acquiring a state at an input timing, wherein said input information concept instance generating step generates the concept instance in accordance with the state acquired by said state acquiring step.

33. An information processing method according to claim 24, further comprising a state storing step of storing a past state, wherein said input information concept instance generating step generates the concept instance in accordance with the past state read by said state storing step.

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34. An information processing method according to claim 23, wherein said input step can input key information.

5 35. An information processing method according to claim 34, wherein said input step can input character information by converting the key information.

10 36. An information processing method according to claim 23, wherein said input step can input speech information.

15 37. An information processing method according to claim 36, wherein said input step can input character information by recognizing the speech information and converting the speech information into character information.

20 38. An information processing method according to claim 23, wherein said input step can optically input image information.

25 39. An information processing method according to claim 38, wherein said input step can input character information of the image information by optically recognizing the image information.

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40. An information processing method according to claim 23, wherein said input step can input hand-written information.

5 41. An information processing method according to claim 40, wherein said input step can input the hand-written character information by recognizing the hand-written character information on line.

10 42. An information processing method according to claim 23, further comprising an input order storing step of storing an input order of information input by said input step, wherein said input analyzing step analyzes the combination of at least two types of input
15 information in accordance with the input order stored by said input order storing step.

20 43. An information processing method according to claim 23, further comprising an input time storing step of storing an input time of information input by said input step, wherein said input analyzing step analyzes the combination of at least two types of input information in accordance with the input time stored by said input time storing step.

25 44. An information processing method according to claim 43, further comprising an input order judging

step of judging the input order of at least two types
of input information in accordance with the input time
of each piece of the input information stored by said
input time storing step, wherein said input analyzing
5 step analyzes the combination of the input information
in accordance with the judged input order.

45. A computer-readable storage medium storing an
information processing program for controlling a
10 computer to perform information processing, said
program comprising codes for causing the computer to
perform:

an input step of inputting a plurality type of
information; and

15 an input analyzing step of analyzing a combination
of at least two types of information input by said
input step.

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